



**AUTHORIZATION/
SUBSCRIPTION UTILITY
(ASU)
TECHNICAL MANUAL**

Version 1.0

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Department of Veterans Affairs
Technical Services
Computerized Patient Record System Product Line

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Introduction

Overview

The Authorization/Subscription Utility (ASU) implements a User Class Hierarchy which is useful for identifying the roles that different users fulfill within the hospital. It also provides tools for creating business rules that apply to documents used by members of such groups. ASU provides a method for identifying who is AUTHORIZED to do something (for example, sign and order). Future versions of ASU will also provide tools for identifying a group of persons who SUBSCRIBE to receive something (for example, the Medical House Staff Officer of the Day must cosign all orders for Schedule II narcotics, etc.).

Features

- ASU lets you define, populate, and retrieve information about User Classes. These User Classes can be defined hospital-wide or more narrowly for a specific service and can be used across VISTA to replace and/or complement keys.
- ASU lets you link user classes with orders and order events and with TIU Document Definitions and document events. This part of ASU defines behavior for orders and TIU documents only. In a future version, it may be extended to define behavior for other clinical entities.
- The User Class Membership file is a relational file, which allows a many-to-many relationship to be defined between User Classes and their members (as defined in the New Person File (#200)).
- Membership in classes may be scheduled for automatic transition to other classes (e.g., the PGY1 Residents will rotate on June 30th, and will become PGY2 Residents as of July 1st).

- The Authorization/Subscription file (#8930.1) is another relational table, linking actions or events (e.g., Signature) with Document Definitions (e.g., Clinical Warning Note), record statuses, user classes (e.g., Provider) and user roles (e.g., Author, Expected Signer, Expected Cosigner, etc.). In this manner, a “Knowledge Base” or table of “Production Rules” can be developed in compliance with the site’s local by-laws (or in some cases, national requirements) for handling of various elements of the medical record. This eliminates the need for “hard-coding” business rules within the application, thereby enforcing policies, independent of the local facility’s preferences. These rules are also “inherited” through both the User Class and Document Definition hierarchies.
- ASU imposes no limitation on the depth or specificity of the User Class hierarchy, which a site may choose to develop.

Implementation & Maintenance

ASU Version 1 is distributed and installed with Text Integration Utilities (TIU) Version 1. After installing these packages, implementation and maintenance are handled through the processes described throughout this manual and the ASU Clinical Coordinators Manual.

Initialize Membership of User Classes

This option invokes a routine for seeding the User Class Membership file (^USRPROV). *Initialize Membership of User Classes* [USR INITIALIZE MEMBERSHIP] is on the TIU Conversions Menu [TIU CONVERSIONS MENU] option.

This option populates the Provider Class (which includes physicians, nurses, psychologists, social workers, and other caregivers) determined by membership in the New Person file, ownership of keys, possession of a VA NUMBER (to allow Medication ordering), etc. It should be run ONCE when first implementing ASU.

Exported Menus & Options

Assign menus and options as described in this table: These options provide the means for setting up and managing User Classes and Business Rules. See the *Authorization/Subscription Utility Clinical Coordinator Manual* for examples of using these options. Recommended assignments are shown in the table below.

Option Text	Option Name	Description	Assignment
User Class Management Menu	USR CLASS MANAGEMENT MENU	This is the menu of options for management of User Class Definition and Membership.	IRMS, Clinical Coordinators
User Class Definition	USR CLASS DEFINITION	This option allows review, addition, editing, and removal of User Classes.	IRMS, Clinical Coordinators
List Membership by User	USR LIST MEMBERSHIP BY USER	This option allows you to review, add, and edit individual members of User Classes.	IRMS, Clinical Coordinators, AO's & Service Chiefs
List Membership by Class	USR LIST MEMBERSHIP BY CLASS	This option allows review, addition, editing, and removal of individual members in User Classes.	IRMS, Clinical Coordinators, AO's & Service Chiefs
Show Class Membership	USR SHOW MEMBERSHIP	This menu option contains the following two options which allow review only of class membership.	End users
Show Membership by User	USR SHOW MEMBERSHIP BY USER	This option lists User Classes an individual is a member of.	End users
Show Membership by Class	USR SHOW MEMBERSHIP BY CLASS	This option lists the members of a selected User Class.	End users
Edit Business Rules	USR EDIT BUSINESS RULES	This option allows the user to enter Business Rules authorizing specific users or groups of users to perform specified actions on documents in particular statuses (e.g. an UNSIGNED PROGRESS NOTE may be EDITED by a PROVIDER who is also the EXPECTED SIGNER of the note, etc.).	IRMS, Clinical Coordinators
Manage Business Rules	USR BUSINESS RULE MANAGEMENT	This option allows you to list the Business rules defined by ASU, and to add, edit, or delete them, as appropriate.	IRM, Clinical Coordinators

Allowable Statuses

Status	Description
Amended	The document has been completed, and a privacy act issue has required its amendment.
Completed	The document has acquired all necessary signatures, and is legally authenticated.
Deleted	The document has been deleted but the audit trail is retained.
Incomplete	This status applies to document definitions only.
Purged	The grace period for purge has expired, and the report text has been removed from the on line record to recover disk space. NOTE: only completed documents may be purged. It is assumed that the chart copy of the document has been retained for archival purposes.
Uncosigned	The document is complete, with the exception of cosignature (i.e., by the attending physician).
Undictated	The document is required, and a record has been created in anticipation of dictation and transcription, but the system has not yet been informed of its dictation.
Unreleased	The document is in the process of being entered into the system, but has not yet been released by the originator (i.e., the person entering the text directly on line).
Unsigned	The document is on line, in a draft state, but the first-line (author's) signature has not yet been obtained.
Untranscribed	The document is required, and the system has been informed of its dictation, but the transcription has not yet been entered, or received by upload.
Unverified	The document has been released or uploaded, but an intervening verification step must be completed before the document may be displayed.

NOTE: The list of statuses shown above should not be considered exhaustive or necessarily complete. As additional document types are incorporated into TIU, new statuses may require definition, to identify stages in workflow not yet anticipated.

Files and Globals

Name	Number	Global	Data
USR CLASS	8930	^USR(8930,	YES
USR AUTHORIZATION/ SUBSCRIPTION	8930.1	^USR(8930.1,	YES
USR ROLE	8930.2	^USR(8930.2,	YES
USR CLASS MEMBERSHIP	8930.3	^USR(8930.3,	YES
USR SEARCH CATEGORIES	8930.4	^USR(8930.4,	YES
USR RECORD STATUS	8930.6	^USR(8930.6,	YES
USR ACTION	8930.8	^USR(8930.8,	YES

The ASU global ^USR (should be journaled.

USR CLASS (#8930)

This file is intended to allow the definition of user classes in such a way that they are useful across packages. It will undoubtedly evolve with more experience in this area.

These user classes are then used to support part of the “authorization” concept: who may do what to a document or order, in its current state.

They will also used to support part of the “subscription” concept: who should receive something, e.g. a notification that a document needs signature.

The User Authorization/Subscription file points to the User Class file to allocate authorizations/subscriptions to appropriate user classes. The User Class Membership file links users in the New Person file to User Classes in a many-to-many relationship.

This file supports an infinite hierarchy of subclasses, with each entry having as many subclasses as desired. Subclasses are contained in the same file, as entries in their own right. A class automatically contains as members all members of its subclasses, as well as explicit members of the class itself.

USR AUTHORIZATION/SUBSCRIPTION (#8930.1)

This file associates users with actions on documents.

Actions are of two kinds— authorization actions such as the signature action, which an associated user is authorized to perform, and subscription actions, such as an unsigned document notification, which the associated user will be able to “sign up to receive.”

An action may be associated with a USER CLASS in the User Class file (e.g. Staff Physician class) *and/or* with a USER ROLE in relation to the document in question (e.g. author or expected cosigner).

If an Authorization/Subscription entry has both User Class AND User Role, the AND FLAG field permits these requirements to be “AND'ed”; that is, a user must both belong to the User Class AND must fill the User Role in order to perform the action. If the AND FLAG has value OR, or has no value, then User Class and User Role within the same entry are “OR'ed.”

Each file entry associates an action with one user class and/or one role. The entry makes this association for a given Document Definition (e.g. Progress Note) of a given status (e.g. Unsigned).

Multiple file entries for the SAME action/Document Definition/document status allow association with more than one user class/role. Such entries are “OR'ed”; that is, if a user belongs to the user class/role of one OR another of these entries, the user may perform the action.

User classes automatically INCLUDE members of their subclasses, as defined in the User Class file.

Document Definitions exist in a hierarchy in file 8925.1, with Classes at the top level, Document Classes at the next level down, and Titles under Document Classes. Authorization/Subscription entries may be defined at any of the above levels. For example, an authorization which applies to most or all Progress Notes should be defined at the Class level for Document Definition “Progress Note.” On the other hand, an authorization, which applies, only to Progress Notes of Title “Dental Hygiene Note” should be defined at the Title level for Document Definition “Dental Hygiene Note.”

USR AUTHORIZATION/SUBSCRIPTION File, cont'd

When using authorizations/subscription to determine whether a given user may perform a given action on a document of a given title in its current status, the code begins by checking entries for that action and status FOR THAT TITLE. If ANY such entries exist, then entries for higher Document Definition levels will be ignored, and the user passes/fails based on that level alone. Thus, if a Title is linked with a certain action, status, and user class, then rules for that Title, action, and status should be entered for ALL user classes that can perform the action on the Title, since broader authorization (e.g. Provider class) set at higher levels (e.g. Progress Notes) is ignored (i.e., inheritance of the privilege is “overridden”).

If such entries do NOT exist, the next higher level of Document Definition is checked. And so on.

If no entries are found on any level, no users can perform/subscribe to the action for the given Document Definition and status.

In this manner, the authority to perform different actions is “inherited” through BOTH the User Class and Document Definition hierarchies.

USR CLASS MEMBERSHIP (#8930.3)

This file links a person from the New Person file to a class in the User Class file. Since user class membership includes members of all subclasses, users should be made members of the most discrete class in a hierarchy of classes. For example, if Jones is a dentist, Jones should be entered into the Dentist class. Since Dentist is a subclass of the Provider class, Jones is then automatically a Provider.

Persons wearing several different hats can have more than one entry in the file. For example, Smith might be a dietitian also working toward a nursing degree. Smith could be entered twice, once as a Dietitian and once as a Student Nurse.

USR SEARCH CATEGORIES (#8930.4)

This file defines the Search Categories available to ASU’s “Rule Browser.” The Rule Browser is a tool which allows the user to call for all rules that apply to a given Document Definition (e.g., Progress Notes), User Class (e.g., PROVIDER), or User Role (e.g., EXPECTED SIGNER). The USR SEARCH CATEGORIES file supports this selection, and allows for its future extension to include other useful categories, as they become apparent.

USR RECORD STATUS (#8930.6)

This file contains the allowable statuses that may be applied to a document or order during its path through the system. It also contains statuses for Document Definitions (e.g., ACTIVE, INACTIVE, and TEST).

USR ACTION (#8930.8)

This file encodes actions, which occur in connection with clinical narrative documents. These actions are referenced by entries in the User Authorization/ Subscription file to associate users with actions.

This file contains two kinds of actions: those a user is authorized to perform on a document, and those a user subscribes to for a document. For example, a user is authorized to perform the Signature action, but a user subscribes to ("signs up to receive") a Notification action.

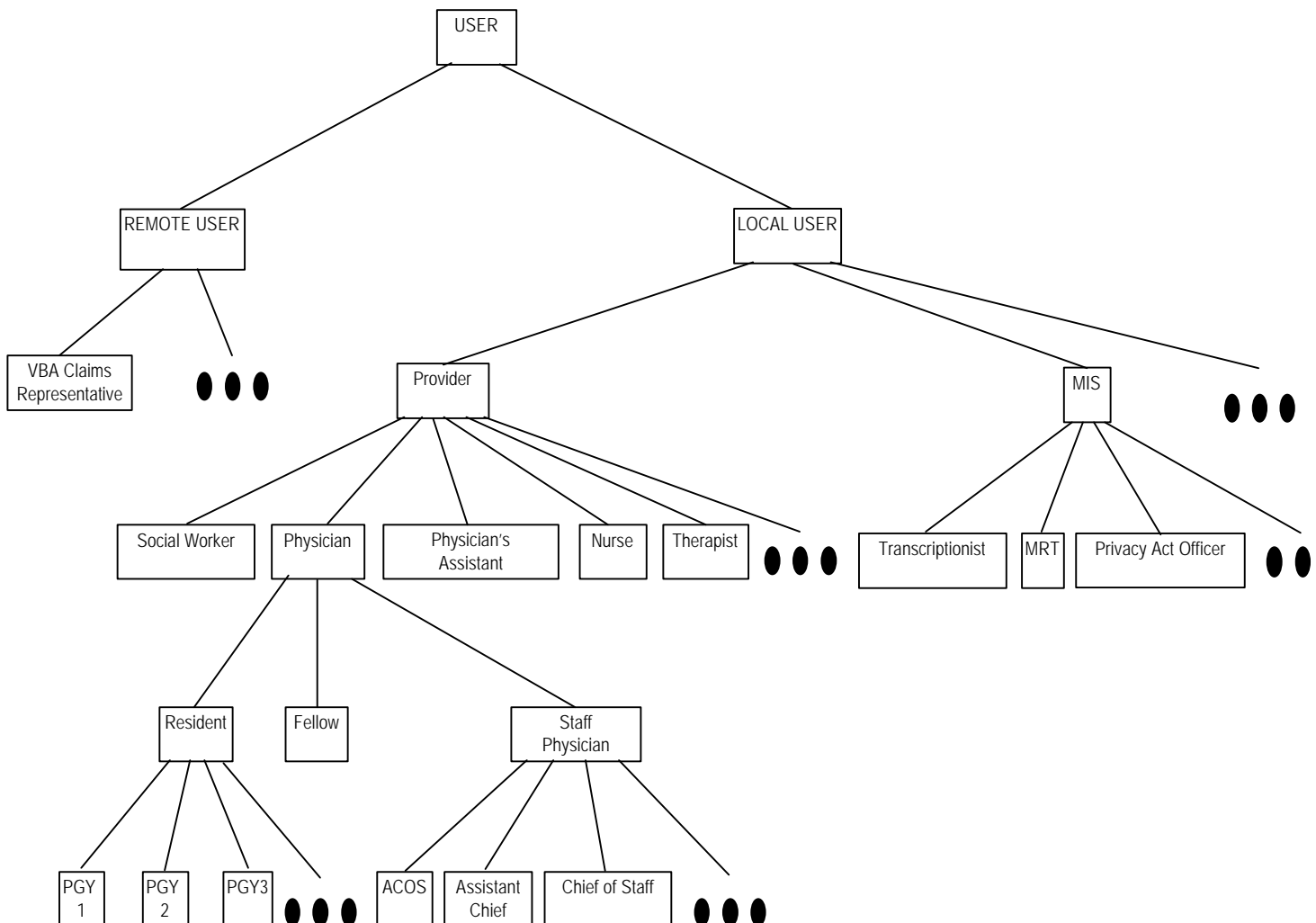
USR Authorization/Subscription File relationships

The table below illustrates the relationship of the different fields in the Authorization/Subscription File. Entries in this file and its associated utilities determine the answer to the question: “Can this user perform the requested action on this document in its current state?” The structure is also designed to determine whether a “consequence” will be required if a given action is performed (e.g., a Medical Resident may sign a Schedule II narcotic order, but the Medical House Staff Officer of the Day will be alerted for cosignature).

Document Type	Status	Action	User Class	and	User Role
Anticoagulation Clinic	unsigned	edit	Anticoagulation Clinic		
Clinical Documents	untranscribed	entry	User		
Clinical Documents	unreleased	release from transcription			Transcriber
Clinical Documents	unsigned	signature			Author
Clinical Documents	unverified	verification	Medical Records Technician		
Clinical Documents	completed	view	User		
Discharge Summary	uncosigned	cosignature	Clinical Service Chief		
Discharge Summary	unsigned	signature	Provider	And	Expected Signer
Discharge Summary	Uncosigned	Cosignature	Physician	And	Expected Cosigner
Discharge Summary	Unsigned	Signature	Service Chief	Warn That Author Hasn't Signed/ Allow Override	
Discharge Summary	Unsigned	Signature			Author
Discharge Summary	Unsigned	Signature			Attending Physician
Discharge Summary	Unsigned	Signature			Author's Surrogate
Discharge Summary	Unsigned	View	Local User		
Discharge Summary	Uncosigned	View	Local User		
Discharge Summary	Amended	View	Anyone		
Progress Note	Completed	Cosignature	Staff Physician		
Progress Note	Unsigned	Identify Signers			Author
Progress Note	Unsigned	Signature	Medical Student	And	Author
Progress Note	Completed	View	User		

User Class Structure:

NOTE: The following diagram illustrates a possible subset of the “standard” user classes. ASU allows membership in multiple classes on a time-dependent basis, and utilities are included to support the scheduled transition of users between classes. The intention is to allow the burden of maintaining membership in such classes to be distributed to the persons at a site who have traditionally maintained personnel rosters: Administrative Officers and Service Chiefs.



Exported Routines

USRAEDT	USRCLASS	USRCLST	USRECLST	USRIL
USRL	USRLA	USRLM	USRLS	USRM
USRMEMBR	USRMLST	USRNTEG	USRPOST	USRPRE
USRPROV	USRRUL	USRRUL1	USRRULA	USRULST
USRUM	USRUMMBR			

Purging & Archiving

Archiving utilities are not provided for the distributed files.

Callable Routines, Entry Points, and APIs

ASU provides a number of publicly supported entry points to which client applications may subscribe. These are listed on the DBA menu on FORUM. Use of these entry points by other packages requires a private Data Base Integration Agreement (DBIA) with ASU.

External Relations

ASU is dependent upon the following **VISTA** packages to function correctly.

Package	Minimum Version
Kernel	8.0
VA FileMan	21
Patient Information Management System (PIMS)	5.3
Text Integration Utilities (TIU)	1.0

Database Integration Agreements

Database Integration Agreements (DBIA) are available on the DBA menu on Mailman.

Online Documentation

Use the KIDS Build File Print option if you would like a complete listing of package components (e.g., files, routines and options) exported with this software.

Use the KIDS Install File Print option if you'd like to print out the results of the installation process.

You can also use the Kernel option, List Routines [XUPRROU], to print a list of any or all of the ASU routines. This option is found on the Routine Tools [XUPR-ROUTINE-TOOLS] menu on the Programmer Options [XUPROG] menu, which is a sub-menu of the Systems Manager Menu [EVE] option. The namespace for the ASU package is USR.

Example:

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: routine Tools
Select Routine Tools Option: list Routines
Routine Print
Want to start each routine on a new page: No// <Enter>
routine(s) ?    > USR*
```

The first line of each routine contains a brief description of the general function of the routine. Use the Kernel option, First Line Routine Print [XU FIRST LINE PRINT], to print a list of just the first line of each ASU subset routine.

Example:

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: routine Tools
Select Routine Tools Option: First Line Routine Print
PRINTS FIRST LINES
routine(s) ?    >USR*
```

Globals

The only global distributed by the ASU package is ^ASU(8930.

Use the Kernel option, List Global [XUPRGL], to print this global. This option is on the Programmer Options menu [XUPROG], which is a sub-menu of the Systems Manager Menu [EVE] option.

Example:

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: LIST Global
Global ^USR*
```

XINDEX

XINDEX is a routine that produces a report called the VA Cross-Referencer. This report is a technical and cross-reference listing of one routine or a group of routines. XINDEX provides a summary of errors and warnings for routines that do not comply with VA programming standards and conventions, a list of local and global variables and what routines they are referenced in, and a list of internal and external routine calls.

XINDEX is invoked from programmer mode: D ^XINDEX.
When selecting routines, select USR*.

?, ??, and ??? Online Help

- ?** Enter one question mark to see helpful information about the components of the ASU and the options available.
- ??** Enter two question marks to see a list of available ASU components.
- ???** Enter three question marks for detailed help, if available.

Appendix A—ASU Security

Security for ASU is established via a combination of menu assignment, User Class assignment, and FileMan access. See earlier sections in this manual and also the ASU User Manual for descriptions of how User Class assignment works.

Menu Access

Option Text	Option Name	Description	Assignment
User Class Management Menu	USR CLASS MANAGEMENT MENU	This is the menu of options for management of User Class Definition and Membership.	IRM, Clinical Coordinators
User Class Definition	USR CLASS DEFINITION	This option allows review, addition, editing, and removal of User Classes.	IRM, Clinical Coordinators
List Membership by User	USR LIST MEMBERSHIP BY USER	This option allows review, addition, editing, and removal of individual members to and from User Classes.	IRM, Clinical Coordinators, AO's & Service Chiefs
List Membership by Class	USR LIST MEMBERSHIP BY CLASS	This option allows review, addition, editing, and removal of individual members to and from User Classes.	IRM, Clinical Coordinators, AO's & Service Chiefs
Edit Business Rules	USR EDIT BUSINESS RULES	This option allows the user to enter Business Rules authorizing specific users or groups of users to perform specified actions on documents in particular statuses (e.g, an UNSIGNED PROGRESS NOTE may be EDITED by a PROVIDER who is also the EXPECTED SIGNER of the note, etc.).	IRM, Clinical Coordinators
Manage Business Rules	USR BUSINESS RULE MANAGEMENT	This option allows you to list the Business rules defined by ASU, and to add, edit, or delete them, as appropriate. This option uses what is commonly known as the "ASU Rule Browser."	IRM, Clinical Coordinators

VA FileMan File Protection

The ASU package files are exported with the following file protection provided by VA FileMan:

File Number	Name	DD	RD	WR	DEL	LAYGO	AUDIT
8930	USR CLASS	@	@	@	@	@	@
8930.1	USR AUTHORIZATION/ SUBSCRIPTION	@	@	@	@	@	@
8930.2	USR ROLE	@	@	@	@	@	@
8930.3	USR CLASS MEMBERSHIP	@	@	@	@	@	@
8930.4	USR SEARCH CATEGORIES	@	@	@	@	@	@
8930.6	USR RECORD STATUS	@	@	@	@	@	@
8930.8	USR ACTION	@	@	@	@	@	@